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FM NPIC

TOP SECRET

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CITE NPIC 4132

SUBJECT: CAMERA INFORMATION FOR MISSION 1047-1

1. THE MISSION UTILIZED TWO PAN CAMERAS, FOUR HORIZON CAMERAS, A STELLAR CAMERA, AND AN INDEX CAMERA.

2. CAMERA DATA

| A. MAIN UNITS      | FORWARD | AFT     | STAR HOR   | PORT HOR   |
|--------------------|---------|---------|------------|------------|
| FOCAL LENGTHS (MM) | 609.628 | 609.628 | FWD 54.950 | FWD 55.000 |
|                    |         |         | AFT 55.000 | AFT 54.750 |

| FILTER (WRATTEN#) | 23A   | 21    | 25   | 25   |
|-------------------|-------|-------|------|------|
| APERTURE          | F3.5  | F3.5  | F8.0 | F6.3 |
| SLIT WIDTH (IN)   | .150  | .130  |      |      |
| EXPOSURE (SEC)    | 1/100 | 1/100 |      |      |
| FILM              | 3404  | 3404  | 3404 | 3404 |
| RESOLUTION (L/MM) | 196   | 188   | NA   | NA   |

| B. S/I UNITS      | STELLAR        | INDEX   |
|-------------------|----------------|---------|
| FOCAL LENGTH (MM) | PART 1 83.9374 | 38.7883 |
|                   | PART 2 84.0807 | 38.8259 |

| FILTER (WRATTEN#) | NONE   | 21    |
|-------------------|--------|-------|
| APERTURE          | F1.8   | F4.5  |
| EXPOSURE (SEC)    | 2.0    | 1/500 |
| FILM              | 3401   | 3400  |
| RESOLUTION (L/MM) | PART 1 | 85    |
|                   | PART 2 | 82    |

| UNIT NUMBER | PART 1                        | D117/149/146 |
|-------------|-------------------------------|--------------|
|             | PART 2 <td>D118/150/154 </td> | D118/150/154 |

| 3. LENS DISTORTION (PIN CUSHION) | MM                 |
|----------------------------------|--------------------|
| A. MAIN UNITS 3                  | 2 1 0 359 358 357  |
| FWD UNIT 0                       | 0 0 0 .001 .003    |
| AFT UNIT .002                    | .001 0 0 .001 .002 |
| B. HORIZON CAMERAS (MM)          | FWD                |

|                                                     | PORT | STAR        | PORT  | STAR |
|-----------------------------------------------------|------|-------------|-------|------|
| GRADIAL) 10 DEGREES                                 | .020 | .020        | .020  | .020 |
| 20 DEGREES                                          | .050 | .050        | .080  | .050 |
| (TANGENTIAL) MAX VECTOR                             | .060 | .015        | .024  | .030 |
| 4. CAMERA ANGLES                                    |      | DEG         | MIN   |      |
| A. ANGLE BETWEEN PAN CAMERAS                        |      | 29          | 42.47 |      |
| B. DEPRESSION ANGLE BETWEEN HORIZON AND PAN CAMERAS |      | FWD STAR 13 | 57.63 |      |
|                                                     |      | FWD PORT 15 | 36.43 |      |

| DISTRIBUTION |            |      |
|--------------|------------|------|
| CY           | OFFICE     | PI   |
| 1            | FILE       |      |
| 2            | CABLE SEC. | 24   |
|              | PPAB/RD    |      |
|              | SECUR.     | 25   |
|              | TSSG       |      |
|              | PSC/OC     |      |
|              | RFD        |      |
|              | REFRO      |      |
| 3            | AID        |      |
|              | IEG        |      |
|              | PROD       |      |
|              | SCLEN      |      |
|              | WEST       |      |
|              | EAST       |      |
|              | M&S        |      |
|              | PGM        |      |
|              | IAS        |      |
|              | DIA-XX4    |      |
|              | SPAD       |      |
|              | DIA-AP     |      |
|              |            | 25X1 |
|              | CMX        |      |

ADVANCE CY  
SANITIZED  
WITH TEXTGROUP 1  
Excluded from automatic  
downgrading and  
declassification

TOP SECRET

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C. ANGLE BETWEEN STELLAR AND  
INDEX CAMERAS

## 5. TIMING MARKS

FREQUENCY MARKS WILL APPEAR ON THE FILM AT A RATE OF 200 CYCLES  
PER SECOND.6. IMAGE MOTION COMPENSATION DATA (CYCLE RATE (CPS),  
GROUND ANGULAR VELOCITY (GAV), AND PASSES WHERE USED).

| NO. | CPS.  | GAV. | NO.   | CPS. | GAV. | PASSES            |
|-----|-------|------|-------|------|------|-------------------|
| 7.  | .3384 | 4    | .0982 |      |      | 1D, 20D THRU 120D |
| 6   | .3511 | 5    | .0856 |      |      | 5D THRU 16D       |

## 7. PROGRAM TIME DATA

CAMERA ON TIME  
(ZULU TIME)

| PASS  | DAY | HR | MIN | SEC | PROGRAM ON TIME<br>UP RAMP | PROGRAM<br>DURATION |
|-------|-----|----|-----|-----|----------------------------|---------------------|
| 1D    | 20  | 23 | 15  | 31  | 1306                       | 37                  |
| 5D 1  | 21  | 05 | 11  | 36  | 1159                       | 89                  |
| 5D 2  | 21  | 05 | 14  | 33  | 1336                       | 88                  |
| 5D 3  | 21  | 05 | 17  | 26  | 1509                       | 89                  |
| 6D    | 21  | 06 | 47  | 18  | 1450                       | 35                  |
| 7D    | 21  | 08 | 17  | 17  | 1455                       | 75                  |
| 8AE   | 21  | 09 | 22  | 59  | 4                          | 46                  |
| 8D    | 21  | 09 | 45  | 42  | 1367                       | 27                  |
| 9D 1  | 21  | 11 | 10  | 43  | 1072                       | 95                  |
| 9D 2  | 21  | 11 | 13  | 21  | 1231                       | 120                 |
| 16D   | 21  | 21 | 51  | 42  | 1640                       | 37                  |
| 20D   | 22  | 03 | 43  | 52  | 1073                       | 75                  |
| 21D   | 22  | 05 | 20  | 51  | 1468                       | 143                 |
| 23D   | 22  | 08 | 21  | 54  | 1483                       | 45                  |
| 24D   | 22  | 09 | 51  | 00  | 1407                       | 69                  |
| 25D   | 22  | 11 | 25  | 58  | 1680                       | 158                 |
| 29D   | 22  | 17 | 38  | 08  | 2319                       | 77                  |
| 32D   | 22  | 21 | 58  | 51  | 1693                       | 38                  |
| 37D   | 23  | 05 | 25  | 49  | 1398                       | 115                 |
| 39D   | 23  | 08 | 28  | 16  | 1500                       | 86                  |
| 40D   | 23  | 09 | 56  | 29  | 1372                       | 68                  |
| 41D   | 23  | 11 | 32  | 54  | 1735                       | 105                 |
| 45D   | 23  | 17 | 43  | 38  | 2292                       | 157                 |
| 53D   | 24  | 05 | 35  | 50  | 1659                       | 47                  |
| 55D   | 24  | 08 | 29  | 16  | 1225                       | 73                  |
| 56D 1 | 24  | 09 | 59  | 42  | 1230                       | 104                 |
| 56D 2 | 24  | 10 | 02  | 19  | 1387                       | 60                  |
| 58D 1 | 24  | 13 | 08  | 30  | 1719                       | 110                 |
| 58D 2 | 24  | 13 | 11  | 17  | 1885                       | 56                  |
| 61D   | 24  | 17 | 50  | 31  | 2381                       | 78                  |
| 63D   | 24  | 20 | 40  | 31  | 1742                       | 46                  |
| 68D 1 | 25  | 04 | 04  | 47  | 1303                       | 99                  |
| 68D 2 | 25  | 04 | 10  | 22  | 1638                       | 45                  |

3.

|       |    |    |    |    |      |     |
|-------|----|----|----|----|------|-----|
| 69D   | 25 | 05 | 41 | 41 | 1698 | 167 |
| 70D   | 25 | 07 | 11 | 18 | 1656 | 75  |
| 71D   | 25 | 08 | 38 | 00 | 1439 | 337 |
| 74D   | 25 | 13 | 14 | 43 | 1787 | 175 |
| 83D   | 26 | 02 | 37 | 47 | 1211 | 80  |
| 84D1  | 26 | 04 | 08 | 53 | 1261 | 113 |
| 84D2  | 26 | 04 | 14 | 51 | 1619 | 93  |
| 86D   | 26 | 07 | 16 | 00 | 1653 | 207 |
| 87D1  | 26 | 08 | 39 | 54 | 1271 | 193 |
| 87D2  | 26 | 08 | 47 | 24 | 1721 | 108 |
| 88D1  | 26 | 10 | 15 | 55 | 1615 | 141 |
| 88D2  | 26 | 10 | 19 | 22 | 1822 | 94  |
| 88D3  | 26 | 10 | 27 | 15 | 2295 | 68  |
| 89D   | 26 | 11 | 46 | 07 | 1611 | 138 |
| 95D   | 26 | 20 | 51 | 47 | 1853 | 64  |
| 99D1  | 27 | 02 | 43 | 23 | 1288 | 43  |
| 99D2  | 27 | 02 | 45 | 08 | 1393 | 49  |
| 101D  | 27 | 05 | 50 | 24 | 1678 | 376 |
| 102D  | 27 | 07 | 18 | 55 | 1573 | 223 |
| 103D  | 27 | 08 | 50 | 23 | 1645 | 266 |
| 104D1 | 27 | 10 | 20 | 02 | 1610 | 109 |
| 104D2 | 27 | 10 | 24 | 35 | 1883 | 87  |
| 110D1 | 28 | 04 | 18 | 24 | 1290 | 100 |
| 110D2 | 28 | 04 | 25 | 12 | 1697 | 203 |
| 117D1 | 28 | 05 | 57 | 19 | 1811 | 55  |
| 117D2 | 28 | 06 | 01 | 55 | 2087 | 55  |
| 118D  | 28 | 07 | 23 | 44 | 1567 | 174 |
| 119D  | 28 | 08 | 53 | 07 | 1533 | 360 |
| 120D1 | 28 | 10 | 21 | 22 | 1415 | 124 |
| 120D2 | 28 | 10 | 25 | 51 | 1684 | 110 |
| 120D3 | 28 | 10 | 29 | 53 | 1926 | 53  |

NOTE: ABOVE DATA APPLIES TO FWD UNIT ONLY. ADD 12 SECONDS  
TO OBTAIN START TIMES OF AFT UNIT.

| 8. TIME CORRELATION (MILLISECONDS) |            |             |            |
|------------------------------------|------------|-------------|------------|
| PASS                               | CLOCK TIME | SYSTEM TIME | DIFFERENCE |
| 8                                  | 368136.527 | 33537.3349  |            |
| 16                                 | 413124.116 | 78524.9196  | .004       |
| 24                                 | 454871.065 | 33871.8644  | .004       |
| 32                                 | 499953.632 | 78954.4266  | .005       |
| 40                                 | 4820.324   | 34292.0258  | .004       |
| 47                                 | 44502.319  | 73974.0160  | .005       |
| 56                                 | 91655.152  | 34726.8430  | .006       |
| 63                                 | 131239.403 | 74311.0886  | .005       |
| 72                                 | 178380.103 | 35051.7819  | .007       |
| 79                                 | 217994.735 | 74666.4080  | .006       |
| 88                                 | 265120.650 | 35392.3157  | .007       |
| 95                                 | 304719.466 | 74991.1253  | .006       |
| 104                                | 351834.677 | 35706.3283  | .008       |
| 111                                | 391416.280 | 75287.9243  | .007       |
| 119                                | 433102.312 | 30573.9487  | .008       |

NOTE: ALL "DIFFERENCE" VALUES ARE PLUS.

GP-1

T O P S E C R E T

END OF MSG